



SEQUENCE LISTING

<110> Srivastava, Pramod

<120> COMPLEXES OF ALPHA (2) MACROGLOBULIN AND ANTIGENIC MOLECULES FOR IMMUNOTHERAPY

<130> 8449-178-999

<140> 09/873,403

<141> 2001-06-04

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<160> 57

<170> PatentIn version 3.2

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gac	ggg	gaa	acg	tgc	cgc	agt	ctg	gat	ccc	ttc	aaa	ctg	ttc	atc	4257
Asp	Gly	Glu	Thr	Cys	Arg	Ser	Leu	Asp	Pro	Phe	Lys	Leu	Phe	Ile	
		1260					1265					1270			
atc	ttc	tcc	aac	cgc	cac	gag	atc	agg	cgc	att	gac	ctt	cac	aag	4302
Ile	Phe	Ser	Asn	Arg	His	Glu	Ile	Arg	Arg	Ile	Asp	Leu	His	Lys	
		1275					1280					1285			
ggg	gac	tac	agc	gtc	cta	gtg	cct	ggc	ctg	cgc	aac	act	att	gcc	4347
Gly	Asp	Tyr	Ser	Val	Leu	Val	Pro	Gly	Leu	Arg	Asn	Thr	Ile	Ala	
		1290					1295					1300			
ctg	gac	ttc	cac	ctc	agc	cag	agt	gcc	ctc	tac	tgg	acc	gac	gcg	4392
Leu	Asp	Phe	His	Leu	Ser	Gln	Ser	Ala	Leu	Tyr	Trp	Thr	Asp	Ala	
		1305					1310					1315			
gta	gag	gac	aag	atc	tac	cgt	ggg	aaa	ctc	ctg	gac	aac	gga	gcc	4437
Val	Glu	Asp	Lys	Ile	Tyr	Arg	Gly	Lys	Leu	Leu	Asp	Asn	Gly	Ala	
		1320					1325					1330			
ctg	acc	agc	ttt	gag	gtg	gtg	att	cag	tat	ggc	ttg	gcc	aca	cca	4482
Leu	Thr	Ser	Phe	Glu	Val	Val	Ile	Gln	Tyr	Gly	Leu	Ala	Thr	Pro	
		1335					1340					1345			
gag	ggc	ctg	gct	gta	gat	tgg	att	gca	ggc	aac	atc	tac	tgg	gtg	4527
Glu	Gly	Leu	Ala	Val	Asp	Trp	Ile	Ala	Gly	Asn	Ile	Tyr	Trp	Val	
		1350					1355					1360			
gag	agc	aac	ctg	gac	cag	atc	gaa	gtg	gcc	aag	ctg	gac	gga	acc	4572
Glu	Ser	Asn	Leu	Asp	Gln	Ile	Glu	Val	Ala	Lys	Leu	Asp	Gly	Thr	
		1365					1370					1375			
ctc	cga	acc	act	ctg	ctg	gcg	ggt	gac	att	gag	cac	ccg	agg	gcc	4617
Leu	Arg	Thr	Thr	Leu	Leu	Ala	Gly	Asp	Ile	Glu	His	Pro	Arg	Ala	
		1380					1385					1390			
atc	gct	ctg	gac	cct	cgg	gat	ggg	att	ctg	ttt	tgg	aca	gac	tgg	4662
Ile	Ala	Leu	Asp	Pro	Arg	Asp	Gly	Ile	Leu	Phe	Trp	Thr	Asp	Trp	
		1395					1400					1405			
gat	gcc	agc	ctg	cca	cga	atc	gag	gct	gca	tcc	atg	agt	gga	gct	4707
Asp	Ala	Ser	Leu	Pro	Arg	Ile	Glu	Ala	Ala	Ser	Met	Ser	Gly	Ala	
		1410					1415					1420			
ggc	cgc	cga	acc	atc	cac	cgg	gag	aca	ggc	tct	ggg	ggc	tgc	gcc	4752
Gly	Arg	Arg	Thr	Ile	His	Arg	Glu	Thr	Gly	Ser	Gly	Gly	Cys	Ala	
		1425					1430					1435			
aat	ggg	ctc	acc	gtg	gat	tac	ctg	gag	aag	cgc	atc	ctc	tgg	att	4797
Asn	Gly	Leu	Thr	Val	Asp	Tyr	Leu	Glu	Lys	Arg	Ile	Leu	Trp	Ile	
		1440					1445					1450			
gat	gct	agg	tca	gat	gcc	atc	tat	tca	gcc	cgg	tat	gac	ggc	tcc	4842
Asp	Ala	Arg	Ser	Asp	Ala	Ile	Tyr	Ser	Ala	Arg	Tyr	Asp	Gly	Ser	
		1455					1460					1465			
ggc	cac	atg	gag	gtg	ctt	cgg	gga	cac	gag	ttc	ctg	tca	cac	cca	4887
Gly	His	Met	Glu	Val	Leu	Arg	Gly	His	Glu	Phe	Leu	Ser	His	Pro	
		1470					1475					1480			

ttt gcc gtg aca ctg tac ggt ggg gag gtg tac tgg acc gac tgg	4932
Phe Ala Val Thr Leu Tyr Gly Gly Glu Val Tyr Trp Thr Asp Trp	
1485 1490 1495	
cga aca aat aca ctg gct aag gcc aac aag tgg act ggc cac aac	4977
Arg Thr Asn Thr Leu Ala Lys Ala Asn Lys Trp Thr Gly His Asn	
1500 1505 1510	
gtc acc gtg gta cag agg acc aac acc cag ccc ttc gac ctg cag	5022
Val Thr Val Val Gln Arg Thr Asn Thr Gln Pro Phe Asp Leu Gln	
1515 1520 1525	
gtg tat cac cct tcc cgg cag ccc atg gct cca aac cca tgt gag	5067
Val Tyr His Pro Ser Arg Gln Pro Met Ala Pro Asn Pro Cys Glu	
1530 1535 1540	
gcc aat ggc ggc cgg ggc ccc tgt tcc cat ctg tgc ctc atc aac	5112
Ala Asn Gly Gly Arg Gly Pro Cys Ser His Leu Cys Leu Ile Asn	
1545 1550 1555	
tac aac cgg acc gtc tcc tgg gcc tgt ccc cac ctc atg aag ctg	5157
Tyr Asn Arg Thr Val Ser Trp Ala Cys Pro His Leu Met Lys Leu	
1560 1565 1570	
cac aag gac aac acc acc tgc tat gag ttt aag aag ttc ctg ctg	5202
His Lys Asp Asn Thr Thr Cys Tyr Glu Phe Lys Lys Phe Leu Leu	
1575 1580 1585	
tac gca cgt cag atg gag atc cgg ggc gtg gac ctg gat gcc ccg	5247
Tyr Ala Arg Gln Met Glu Ile Arg Gly Val Asp Leu Asp Ala Pro	
1590 1595 1600	
tac tac aat tat atc atc tcc ttc acg gtg cct gat atc gac aat	5292
Tyr Tyr Asn Tyr Ile Ile Ser Phe Thr Val Pro Asp Ile Asp Asn	
1605 1610 1615	
gtc acg gtg ctg gac tat gat gcc cga gag cag cga gtt tac tgg	5337
Val Thr Val Leu Asp Tyr Asp Ala Arg Glu Gln Arg Val Tyr Trp	
1620 1625 1630	
tct gat gtg cgg act caa gcc atc aaa agg gca ttt atc aac ggc	5382
Ser Asp Val Arg Thr Gln Ala Ile Lys Arg Ala Phe Ile Asn Gly	
1635 1640 1645	
act ggc gtg gag acc gtt gtc tct gca gac ttg ccc aac gcc cac	5427
Thr Gly Val Glu Thr Val Val Ser Ala Asp Leu Pro Asn Ala His	
1650 1655 1660	
ggg ctg gct gtg gac tgg gtc tcc cga aat ctg ttt tgg aca agt	5472
Gly Leu Ala Val Asp Trp Val Ser Arg Asn Leu Phe Trp Thr Ser	
1665 1670 1675	
tac gac acc aac aag aag cag att aac gtg gcc cgg ctg gac ggc	5517
Tyr Asp Thr Asn Lys Lys Gln Ile Asn Val Ala Arg Leu Asp Gly	
1680 1685 1690	
tcc ttc aag aat gcg gtg gtg cag ggc ctg gag cag ccc cac ggc	5562
Ser Phe Lys Asn Ala Val Val Gln Gly Leu Glu Gln Pro His Gly	
1695 1700 1705	
ctg gtc gtc cac ccg ctt cgt ggc aag ctc tac tgg act gat ggg	5607

Leu	Val	Val	His	Pro	Leu	Arg	Gly	Lys	Leu	Tyr	Trp	Thr	Asp	Gly	
		1710					1715					1720			
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Asp	Asn	Ile	Ser	Met	Ala	Asn	Met	Asp	Gly	Ser	Asn	His	Thr	Leu	
		1725					1730					1735			
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Leu	Phe	Ser	Gly	Gln	Lys	Gly	Pro	Val	Gly	Leu	Ala	Ile	Asp	Phe	
		1740					1745					1750			
cct	gag	agc	aaa	ctc	tac	tgg	atc	agc	tct	ggg	aac	cac	aca	atc	5742
Pro	Glu	Ser	Lys	Leu	Tyr	Trp	Ile	Ser	Ser	Gly	Asn	His	Thr	Ile	
		1755					1760					1765			
aac	cgt	tgc	aat	ctg	gat	ggg	agc	gag	ctg	gag	gtc	atc	gac	acc	5787
Asn	Arg	Cys	Asn	Leu	Asp	Gly	Ser	Glu	Leu	Glu	Val	Ile	Asp	Thr	
		1770					1775					1780			
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Met	Arg	Ser	Gln	Leu	Gly	Lys	Ala	Thr	Ala	Leu	Ala	Ile	Met	Gly	
		1785					1790					1795			
gac	aag	ctg	tgg	tgg	gca	gat	cag	gtg	tca	gag	aag	atg	ggc	acg	5877
Asp	Lys	Leu	Trp	Trp	Ala	Asp	Gln	Val	Ser	Glu	Lys	Met	Gly	Thr	
		1800					1805					1810			
tgc	aac	aaa	gcc	gat	ggc	tct	ggg	tcc	gtg	gtg	ctg	cgg	aac	agt	5922
Cys	Asn	Lys	Ala	Asp	Gly	Ser	Gly	Ser	Val	Val	Leu	Arg	Asn	Ser	
		1815					1820					1825			
acc	acg	ttg	gtt	atg	cac	atg	aag	gtg	tat	gac	gag	agc	atc	cag	5967
Thr	Thr	Leu	Val	Met	His	Met	Lys	Val	Tyr	Asp	Glu	Ser	Ile	Gln	
		1830					1835					1840			
cta	gag	cat	gag	ggc	acc	aac	ccc	tgc	agt	gtc	aac	aac	gga	gac	6012
Leu	Glu	His	Glu	Gly	Thr	Asn	Pro	Cys	Ser	Val	Asn	Asn	Gly	Asp	
		1845					1850					1855			
tgt	tcc	cag	ctc	tgc	ctg	cca	aca	tca	gag	acg	act	cgc	tcc	tgt	6057
Cys	Ser	Gln	Leu	Cys	Leu	Pro	Thr	Ser	Glu	Thr	Thr	Arg	Ser	Cys	
		1860					1865					1870			
atg	tgt	aca	gcc	ggt	tac	agc	ctc	cgg	agc	gga	cag	cag	gcc	tgt	6102
Met	Cys	Thr	Ala	Gly	Tyr	Ser	Leu	Arg	Ser	Gly	Gln	Gln	Ala	Cys	
		1875					1880					1885			
gag	ggt	gtg	ggc	tct	ttt	ctc	ctg	tac	tct	gta	cat	gag	gga	att	6147
Glu	Gly	Val	Gly	Ser	Phe	Leu	Leu	Tyr	Ser	Val	His	Glu	Gly	Ile	
		1890					1895					1900			
cgg	ggg	att	cca	cta	gat	ccc	aat	gac	aag	tcg	gat	gcc	ctg	gtc	6192
Arg	Gly	Ile	Pro	Leu	Asp	Pro	Asn	Asp	Lys	Ser	Asp	Ala	Leu	Val	
		1905					1910					1915			
cca	gtg	tcc	gga	act	tca	ctg	gct	gtc	gga	atc	gac	ttc	cat	gcc	6237
Pro	Val	Ser	Gly	Thr	Ser	Leu	Ala	Val	Gly	Ile	Asp	Phe	His	Ala	
		1920					1925					1930			
gaa	aat	gac	act	att	tat	tgg	gtg	gat	atg	ggc	cta	agc	acc	atc	6282
Glu	Asn	Asp	Thr	Ile	Tyr	Trp	Val	Asp	Met	Gly	Leu	Ser	Thr	Ile	

1935			1940			1945											
agc	agg	gcc	aag	cgt	gac	cag	aca	tgg	cga	gag	gat	gtg	gtg	acc			6327
Ser	Arg	Ala	Lys	Arg	Asp	Gln	Thr	Trp	Arg	Glu	Asp	Val	Val	Thr			
		1950					1955						1960				
aac	ggt	att	ggc	cgt	gtg	gag	ggc	atc	gcc	gtg	gac	tgg	atc	gca			6372
Asn	Gly	Ile	Gly	Arg	Val	Glu	Gly	Ile	Ala	Val	Asp	Trp	Ile	Ala			
		1965					1970						1975				
ggc	aac	ata	tac	tgg	acg	gac	cag	ggc	ttc	gat	gtc	atc	gag	gtt			6417
Gly	Asn	Ile	Tyr	Trp	Thr	Asp	Gln	Gly	Phe	Asp	Val	Ile	Glu	Val			
		1980					1985						1990				
gcc	cgg	ctc	aat	ggc	tct	ttt	cgt	tat	gtg	gtc	att	tcc	cag	ggc			6462
Ala	Arg	Leu	Asn	Gly	Ser	Phe	Arg	Tyr	Val	Val	Ile	Ser	Gln	Gly			
		1995					2000						2005				
ctg	gac	aag	cct	cgg	gcc	atc	act	gtc	cac	cca	gag	aag	ggg	tac			6507
Leu	Asp	Lys	Pro	Arg	Ala	Ile	Thr	Val	His	Pro	Glu	Lys	Gly	Tyr			
		2010					2015						2020				
ttg	ttc	tgg	acc	gag	tgg	ggc	cat	tac	cca	cgt	att	gag	cgg	tct			6552
Leu	Phe	Trp	Thr	Glu	Trp	Gly	His	Tyr	Pro	Arg	Ile	Glu	Arg	Ser			
		2025					2030						2035				
cgc	ctt	gat	ggc	aca	gag	aga	gtg	gtg	ttg	gtt	aat	gtc	agc	atc			6597
Arg	Leu	Asp	Gly	Thr	Glu	Arg	Val	Val	Leu	Val	Asn	Val	Ser	Ile			
		2040					2045						2050				
agc	tgg	ccc	aat	ggc	atc	tca	gta	gac	tat	cag	ggc	ggc	aag	ctc			6642
Ser	Trp	Pro	Asn	Gly	Ile	Ser	Val	Asp	Tyr	Gln	Gly	Gly	Lys	Leu			
		2055					2060						2065				
tac	tgg	tgt	gat	gct	cgg	atg	gac	aag	atc	gag	cgc	atc	gac	ctg			6687
Tyr	Trp	Cys	Asp	Ala	Arg	Met	Asp	Lys	Ile	Glu	Arg	Ile	Asp	Leu			
		2070					2075						2080				
gaa	acg	ggc	gag	aac	cgg	gag	gtg	gtc	ctg	tcc	agc	aat	aac	atg			6732
Glu	Thr	Gly	Glu	Asn	Arg	Glu	Val	Val	Leu	Ser	Ser	Asn	Asn	Met			
		2085					2090						2095				
gat	atg	ttc	tcc	gtg	tcc	gtg	ttt	gag	gac	ttc	atc	tac	tgg	agt			6777
Asp	Met	Phe	Ser	Val	Ser	Val	Phe	Glu	Asp	Phe	Ile	Tyr	Trp	Ser			
		2100					2105						2110				
gac	aga	act	cac	gcc	aat	ggc	tcc	atc	aag	cgc	ggc	tgc	aaa	gac			6822
Asp	Arg	Thr	His	Ala	Asn	Gly	Ser	Ile	Lys	Arg	Gly	Cys	Lys	Asp			
		2115					2120						2125				
aat	gct	aca	gac	tcc	gtg	cct	ctg	agg	aca	ggc	att	ggc	gtt	cag			6867
Asn	Ala	Thr	Asp	Ser	Val	Pro	Leu	Arg	Thr	Gly	Ile	Gly	Val	Gln			
		2130					2135						2140				
ctt	aaa	gac	atc	aag	gtc	ttc	aac	agg	gac	agg	cag	aag	ggc	acc			6912
Leu	Lys	Asp	Ile	Lys	Val	Phe	Asn	Arg	Asp	Arg	Gln	Lys	Gly	Thr			
		2145					2150						2155				
aat	gtg	tgc	gcg	gta	gcc	aac	ggc	ggg	tgc	cag	cag	ctc	tgc	ttg			6957
Asn	Val	Cys	Ala	Val	Ala	Asn	Gly	Gly	Cys	Gln	Gln	Leu	Cys	Leu			
		2160					2165						2170				

tat	cgg	ggt	ggc	gga	cag	cga	gcc	tgt	gcc	tgt	gcc	cac	ggg	atg	7002
Tyr	Arg	Gly	Gly	Gly	Gln	Arg	Ala	Cys	Ala	Cys	Ala	His	Gly	Met	
		2175					2180					2185			
ctg	gca	gaa	gac	ggg	gcc	tca	tgc	cga	gag	tac	gct	ggc	tac	ctg	7047
Leu	Ala	Glu	Asp	Gly	Ala	Ser	Cys	Arg	Glu	Tyr	Ala	Gly	Tyr	Leu	
		2190					2195					2200			
ctc	tac	tca	gag	cgg	acc	atc	ctc	aag	agc	atc	cac	ctg	tcg	gat	7092
Leu	Tyr	Ser	Glu	Arg	Thr	Ile	Leu	Lys	Ser	Ile	His	Leu	Ser	Asp	
		2205					2210					2215			
gag	cgt	aac	ctc	aac	gca	ccg	gtg	cag	ccc	ttt	gaa	gac	ccc	gag	7137
Glu	Arg	Asn	Leu	Asn	Ala	Pro	Val	Gln	Pro	Phe	Glu	Asp	Pro	Glu	
		2220					2225					2230			
cac	atg	aaa	aat	gtc	atc	gcc	ctg	gcc	ttt	gac	tac	cga	gca	ggc	7182
His	Met	Lys	Asn	Val	Ile	Ala	Leu	Ala	Phe	Asp	Tyr	Arg	Ala	Gly	
		2235					2240					2245			
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Thr	Ser	Pro	Gly	Thr	Pro	Asn	Arg	Ile	Phe	Phe	Ser	Asp	Ile	His	
		2250					2255					2260			
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Phe	Gly	Asn	Ile	Gln	Gln	Ile	Asn	Asp	Asp	Gly	Ser	Gly	Arg	Thr	
		2265					2270					2275			
acc	atc	gtg	gaa	aat	gtg	ggc	tct	gtg	gaa	ggc	ctg	gcc	tat	cac	7317
Thr	Ile	Val	Glu	Asn	Val	Gly	Ser	Val	Glu	Gly	Leu	Ala	Tyr	His	
		2280					2285					2290			
cgt	ggc	tgg	gac	aca	ctg	tac	tgg	aca	agc	tac	acc	aca	tcc	acc	7362
Arg	Gly	Trp	Asp	Thr	Leu	Tyr	Trp	Thr	Ser	Tyr	Thr	Thr	Ser	Thr	
		2295					2300					2305			
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Ile	Thr	Arg	His	Thr	Val	Asp	Gln	Thr	Arg	Pro	Gly	Ala	Phe	Glu	
		2310					2315					2320			
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Arg	Glu	Thr	Val	Ile	Thr	Met	Ser	Gly	Asp	Asp	His	Pro	Arg	Ala	
		2325					2330					2335			
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Phe	Val	Leu	Asp	Glu	Cys	Gln	Asn	Leu	Met	Phe	Trp	Thr	Asn	Trp	
		2340					2345					2350			
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Asn	Glu	Leu	His	Pro	Ser	Ile	Met	Arg	Ala	Ala	Leu	Ser	Gly	Ala	
		2355					2360					2365			
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Asn	Val	Leu	Thr	Leu	Ile	Glu	Lys	Asp	Ile	Arg	Thr	Pro	Asn	Gly	
		2370					2375					2380			
ttg	gcc	atc	gac	cac	cgg	gcg	gag	aag	ctg	tac	ttc	tcg	gat	gcc	7632
Leu	Ala	Ile	Asp	His	Arg	Ala	Glu	Lys	Leu	Tyr	Phe	Ser	Asp	Ala	
		2385					2390					2395			

acc	ttg	gac	aag	atc	gag	cgc	tgc	gag	tac	gac	ggc	tcc	cac	cgc	7677
Thr	Leu	Asp	Lys	Ile	Glu	Arg	Cys	Glu	Tyr	Asp	Gly	Ser	His	Arg	
		2400					2405					2410			
tat	gtg	atc	cta	aag	tcg	gag	ccc	gtc	cac	ccc	ttt	ggg	ttg	gcg	7722
Tyr	Val	Ile	Leu	Lys	Ser	Glu	Pro	Val	His	Pro	Phe	Gly	Leu	Ala	
		2415					2420					2425			
gtg	tac	gga	gag	cac	att	ttc	tgg	act	gac	tgg	gtg	cgg	cgg	gct	7767
Val	Tyr	Gly	Glu	His	Ile	Phe	Trp	Thr	Asp	Trp	Val	Arg	Arg	Ala	
		2430					2435					2440			
gtg	cag	cga	gcc	aac	aag	tat	gtg	ggc	agc	gac	atg	aag	ctg	ctt	7812
Val	Gln	Arg	Ala	Asn	Lys	Tyr	Val	Gly	Ser	Asp	Met	Lys	Leu	Leu	
		2445					2450					2455			
cgg	gtg	gac	att	ccc	cag	caa	ccc	atg	ggc	atc	atc	gcc	gtg	gcc	7857
Arg	Val	Asp	Ile	Pro	Gln	Gln	Pro	Met	Gly	Ile	Ile	Ala	Val	Ala	
		2460					2465					2470			
aat	gac	acc	aac	agc	tgt	gaa	ctc	tcc	ccc	tgc	cgt	atc	aac	aat	7902
Asn	Asp	Thr	Asn	Ser	Cys	Glu	Leu	Ser	Pro	Cys	Arg	Ile	Asn	Asn	
		2475					2480					2485			
gga	ggc	tgc	cag	gat	ctg	tgt	ctg	ctc	acc	cac	caa	ggc	cac	gtc	7947
Gly	Gly	Cys	Gln	Asp	Leu	Cys	Leu	Leu	Thr	His	Gln	Gly	His	Val	
		2490					2495					2500			
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Asn	Cys	Ser	Cys	Arg	Gly	Gly	Arg	Ile	Leu	Gln	Glu	Asp	Phe	Thr	
		2505					2510					2515			
tgc	cgg	gct	gtg	aac	tcc	tct	tgt	cgg	gca	caa	gat	gag	ttt	gag	8037
Cys	Arg	Ala	Val	Asn	Ser	Ser	Cys	Arg	Ala	Gln	Asp	Glu	Phe	Glu	
		2520					2525					2530			
tgt	gcc	aat	ggg	gaa	tgt	atc	agc	ttc	agc	ctc	acc	tgt	gat	ggc	8082
Cys	Ala	Asn	Gly	Glu	Cys	Ile	Ser	Phe	Ser	Leu	Thr	Cys	Asp	Gly	
		2535					2540					2545			
gtc	tcc	cac	tgc	aag	gac	aag	tcc	gat	gag	aag	ccc	tcc	tac	tgc	8127
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Cys	Pro	Gln	Ser	Lys	Ala	Gln	Arg	Cys	Pro	Pro	Asn	Glu	His	Ser	Cys	65	70	75	80
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Leu Val Tyr Gly Lys Gly Arg Pro Gly Ile Ile Arg Gly Met Asp Met
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Gly Ala Lys Val Pro Asp Glu His Met Ile Pro Ile Glu Asn Leu Met
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Asn Pro Arg Ala Leu Asp Phe His Ala Glu Thr Gly Phe Ile Tyr Phe
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Ala Asp Thr Thr Ser Tyr Leu Ile Gly Arg Gln Lys Ile Asp Gly Thr
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Ala Val Asp Trp Met Gly Asp Asn Leu Tyr Trp Thr Asp Asp Gly Pro
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Lys Lys Thr Ile Ser Val Ala Arg Leu Glu Lys Ala Ala Gln Thr Arg
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Lys Thr Leu Ile Glu Gly Lys Met Thr His Pro Arg Ala Ile Val Val
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Lys Asp Ser Arg Arg Gly Arg Leu Glu Arg Ala Trp Met Asp Gly Ser
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His Arg Asp Ile Phe Val Thr Ser Lys Thr Val Leu Trp Pro Asn Gly
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Leu Ser Leu Asp Ile Pro Ala Gly Arg Leu Tyr Trp Val Asp Ala Phe
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Tyr Asp Arg Ile Glu Thr Ile Leu Leu Asn Gly Thr Asp Arg Lys Ile
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945					950					955				960				
Asp	Cys	Gly	Asp	Arg	Ser	Asp	Glu	Ser	Ala	Ser	Cys	Ala	Tyr	Pro	Thr			
				965					970					975				

Cys Phe Pro Leu Thr Gln Phe Thr Cys Asn Asn Gly Arg Cys Ile Asn
980 985 990

Ile Asn Trp Arg Cys Asp Asn Asp Asn Asp Cys Gly Asp Asn Ser Asp
995 1000 1005

Glu Ala Gly Cys Ser His Ser Cys Ser Ser Thr Gln Phe Lys Cys
1010 1015 1020

Asn Ser Gly Arg Cys Ile Pro Glu His Trp Thr Cys Asp Gly Asp
1025 1030 1035

Asn Asp Cys Gly Asp Tyr Ser Asp Glu Thr His Ala Asn Cys Thr
1040 1045 1050

Asn Gln Ala Thr Arg Pro Pro Gly Gly Cys His Ser Asp Glu Phe
1055 1060 1065

Gln Cys Pro Leu Asp Gly Leu Cys Ile Pro Leu Arg Trp Arg Cys
1070 1075 1080

Asp Gly Asp Thr Asp Cys Met Asp Ser Ser Asp Glu Lys Ser Cys
1085 1090 1095

Glu Gly Val Thr His Val Cys Asp Pro Asn Val Lys Phe Gly Cys
1100 1105 1110

Lys Asp Ser Ala Arg Cys Ile Ser Lys Ala Trp Val Cys Asp Gly
1115 1120 1125

Asp Ser Asp Cys Glu Asp Asn Ser Asp Glu Glu Asn Cys Glu Ala
1130 1135 1140

Leu Ala Cys Arg Pro Pro Ser His Pro Cys Ala Asn Asn Thr Ser
1145 1150 1155

Val Cys Leu Pro Pro Asp Lys Leu Cys Asp Gly Lys Asp Asp Cys
1160 1165 1170

Gly Asp Gly Ser Asp Glu Gly Glu Leu Cys Asp Gln Cys Ser Leu
1175 1180 1185

Asn Asn Gly Gly Cys Ser His Asn Cys Ser Val Ala Pro Gly Glu
1190 1195 1200

Gly Ile Val Cys Ser Cys Pro Leu Gly Met Glu Leu Gly Ser Asp

1205		1210		1215
Asn His Thr Cys Gln Ile Gln Ser Tyr Cys Ala Lys His Leu Lys 1220 1225 1230				
Cys Ser Gln Lys Cys Asp Gln Asn Lys Phe Ser Val Lys Cys Ser 1235 1240 1245				
Cys Tyr Glu Gly Trp Val Leu Glu Pro Asp Gly Glu Thr Cys Arg 1250 1255 1260				
Ser Leu Asp Pro Phe Lys Leu Phe Ile Ile Phe Ser Asn Arg His 1265 1270 1275				
Glu Ile Arg Arg Ile Asp Leu His Lys Gly Asp Tyr Ser Val Leu 1280 1285 1290				
Val Pro Gly Leu Arg Asn Thr Ile Ala Leu Asp Phe His Leu Ser 1295 1300 1305				
Gln Ser Ala Leu Tyr Trp Thr Asp Ala Val Glu Asp Lys Ile Tyr 1310 1315 1320				
Arg Gly Lys Leu Leu Asp Asn Gly Ala Leu Thr Ser Phe Glu Val 1325 1330 1335				
Val Ile Gln Tyr Gly Leu Ala Thr Pro Glu Gly Leu Ala Val Asp 1340 1345 1350				
Trp Ile Ala Gly Asn Ile Tyr Trp Val Glu Ser Asn Leu Asp Gln 1355 1360 1365				
Ile Glu Val Ala Lys Leu Asp Gly Thr Leu Arg Thr Thr Leu Leu 1370 1375 1380				
Ala Gly Asp Ile Glu His Pro Arg Ala Ile Ala Leu Asp Pro Arg 1385 1390 1395				
Asp Gly Ile Leu Phe Trp Thr Asp Trp Asp Ala Ser Leu Pro Arg 1400 1405 1410				
Ile Glu Ala Ala Ser Met Ser Gly Ala Gly Arg Arg Thr Ile His 1415 1420 1425				
Arg Glu Thr Gly Ser Gly Gly Cys Ala Asn Gly Leu Thr Val Asp				

1430		1435		1440
Tyr Leu Glu Lys Arg Ile	Leu Trp Ile Asp Ala	Arg Ser Asp Ala		
1445	1450	1455		
Ile Tyr Ser Ala Arg Tyr	Asp Gly Ser Gly His	Met Glu Val Leu		
1460	1465	1470		
Arg Gly His Glu Phe Leu	Ser His Pro Phe Ala	Val Thr Leu Tyr		
1475	1480	1485		
Gly Gly Glu Val Tyr Trp	Thr Asp Trp Arg Thr	Asn Thr Leu Ala		
1490	1495	1500		
Lys Ala Asn Lys Trp Thr	Gly His Asn Val Thr	Val Val Gln Arg		
1505	1510	1515		
Thr Asn Thr Gln Pro Phe	Asp Leu Gln Val Tyr	His Pro Ser Arg		
1520	1525	1530		
Gln Pro Met Ala Pro Asn	Pro Cys Glu Ala Asn	Gly Gly Arg Gly		
1535	1540	1545		
Pro Cys Ser His Leu Cys	Leu Ile Asn Tyr Asn	Arg Thr Val Ser		
1550	1555	1560		
Trp Ala Cys Pro His Leu	Met Lys Leu His Lys	Asp Asn Thr Thr		
1565	1570	1575		
Cys Tyr Glu Phe Lys Lys	Phe Leu Leu Tyr Ala	Arg Gln Met Glu		
1580	1585	1590		
Ile Arg Gly Val Asp Leu	Asp Ala Pro Tyr Tyr	Asn Tyr Ile Ile		
1595	1600	1605		
Ser Phe Thr Val Pro Asp	Ile Asp Asn Val Thr	Val Leu Asp Tyr		
1610	1615	1620		
Asp Ala Arg Glu Gln Arg	Val Tyr Trp Ser Asp	Val Arg Thr Gln		
1625	1630	1635		
Ala Ile Lys Arg Ala Phe	Ile Asn Gly Thr Gly	Val Glu Thr Val		
1640	1645	1650		
Val Ser Ala Asp Leu Pro	Asn Ala His Gly Leu	Ala Val Asp Trp		
1655	1660	1665		

Val	Ser	Arg	Asn	Leu	Phe	Trp	Thr	Ser	Tyr	Asp	Thr	Asn	Lys	Lys
1670						1675					1680			
Gln	Ile	Asn	Val	Ala	Arg	Leu	Asp	Gly	Ser	Phe	Lys	Asn	Ala	Val
1685						1690					1695			
Val	Gln	Gly	Leu	Glu	Gln	Pro	His	Gly	Leu	Val	Val	His	Pro	Leu
1700						1705					1710			
Arg	Gly	Lys	Leu	Tyr	Trp	Thr	Asp	Gly	Asp	Asn	Ile	Ser	Met	Ala
1715						1720					1725			
Asn	Met	Asp	Gly	Ser	Asn	His	Thr	Leu	Leu	Phe	Ser	Gly	Gln	Lys
1730						1735					1740			
Gly	Pro	Val	Gly	Leu	Ala	Ile	Asp	Phe	Pro	Glu	Ser	Lys	Leu	Tyr
1745						1750					1755			
Trp	Ile	Ser	Ser	Gly	Asn	His	Thr	Ile	Asn	Arg	Cys	Asn	Leu	Asp
1760						1765					1770			
Gly	Ser	Glu	Leu	Glu	Val	Ile	Asp	Thr	Met	Arg	Ser	Gln	Leu	Gly
1775						1780					1785			
Lys	Ala	Thr	Ala	Leu	Ala	Ile	Met	Gly	Asp	Lys	Leu	Trp	Trp	Ala
1790						1795					1800			
Asp	Gln	Val	Ser	Glu	Lys	Met	Gly	Thr	Cys	Asn	Lys	Ala	Asp	Gly
1805						1810					1815			
Ser	Gly	Ser	Val	Val	Leu	Arg	Asn	Ser	Thr	Thr	Leu	Val	Met	His
1820						1825					1830			
Met	Lys	Val	Tyr	Asp	Glu	Ser	Ile	Gln	Leu	Glu	His	Glu	Gly	Thr
1835						1840					1845			
Asn	Pro	Cys	Ser	Val	Asn	Asn	Gly	Asp	Cys	Ser	Gln	Leu	Cys	Leu
1850						1855					1860			
Pro	Thr	Ser	Glu	Thr	Thr	Arg	Ser	Cys	Met	Cys	Thr	Ala	Gly	Tyr
1865						1870					1875			
Ser	Leu	Arg	Ser	Gly	Gln	Gln	Ala	Cys	Glu	Gly	Val	Gly	Ser	Phe
1880						1885					1890			

Leu	Leu	Tyr	Ser	Val	His	Glu	Gly	Ile	Arg	Gly	Ile	Pro	Leu	Asp
1895						1900					1905			
Pro	Asn	Asp	Lys	Ser	Asp	Ala	Leu	Val	Pro	Val	Ser	Gly	Thr	Ser
1910						1915					1920			
Leu	Ala	Val	Gly	Ile	Asp	Phe	His	Ala	Glu	Asn	Asp	Thr	Ile	Tyr
1925						1930					1935			
Trp	Val	Asp	Met	Gly	Leu	Ser	Thr	Ile	Ser	Arg	Ala	Lys	Arg	Asp
1940						1945					1950			
Gln	Thr	Trp	Arg	Glu	Asp	Val	Val	Thr	Asn	Gly	Ile	Gly	Arg	Val
1955						1960					1965			
Glu	Gly	Ile	Ala	Val	Asp	Trp	Ile	Ala	Gly	Asn	Ile	Tyr	Trp	Thr
1970						1975					1980			
Asp	Gln	Gly	Phe	Asp	Val	Ile	Glu	Val	Ala	Arg	Leu	Asn	Gly	Ser
1985						1990					1995			
Phe	Arg	Tyr	Val	Val	Ile	Ser	Gln	Gly	Leu	Asp	Lys	Pro	Arg	Ala
2000						2005					2010			
Ile	Thr	Val	His	Pro	Glu	Lys	Gly	Tyr	Leu	Phe	Trp	Thr	Glu	Trp
2015						2020					2025			
Gly	His	Tyr	Pro	Arg	Ile	Glu	Arg	Ser	Arg	Leu	Asp	Gly	Thr	Glu
2030						2035					2040			
Arg	Val	Val	Leu	Val	Asn	Val	Ser	Ile	Ser	Trp	Pro	Asn	Gly	Ile
2045						2050					2055			
Ser	Val	Asp	Tyr	Gln	Gly	Gly	Lys	Leu	Tyr	Trp	Cys	Asp	Ala	Arg
2060						2065					2070			
Met	Asp	Lys	Ile	Glu	Arg	Ile	Asp	Leu	Glu	Thr	Gly	Glu	Asn	Arg
2075						2080					2085			
Glu	Val	Val	Leu	Ser	Ser	Asn	Asn	Met	Asp	Met	Phe	Ser	Val	Ser
2090						2095					2100			
Val	Phe	Glu	Asp	Phe	Ile	Tyr	Trp	Ser	Asp	Arg	Thr	His	Ala	Asn
2105						2110					2115			

Gly	Ser	Ile	Lys	Arg	Gly	Cys	Lys	Asp	Asn	Ala	Thr	Asp	Ser	Val
2120						2125					2130			
Pro	Leu	Arg	Thr	Gly	Ile	Gly	Val	Gln	Leu	Lys	Asp	Ile	Lys	Val
2135						2140					2145			
Phe	Asn	Arg	Asp	Arg	Gln	Lys	Gly	Thr	Asn	Val	Cys	Ala	Val	Ala
2150						2155					2160			
Asn	Gly	Gly	Cys	Gln	Gln	Leu	Cys	Leu	Tyr	Arg	Gly	Gly	Gly	Gln
2165						2170					2175			
Arg	Ala	Cys	Ala	Cys	Ala	His	Gly	Met	Leu	Ala	Glu	Asp	Gly	Ala
2180						2185					2190			
Ser	Cys	Arg	Glu	Tyr	Ala	Gly	Tyr	Leu	Leu	Tyr	Ser	Glu	Arg	Thr
2195						2200					2205			
Ile	Leu	Lys	Ser	Ile	His	Leu	Ser	Asp	Glu	Arg	Asn	Leu	Asn	Ala
2210						2215					2220			
Pro	Val	Gln	Pro	Phe	Glu	Asp	Pro	Glu	His	Met	Lys	Asn	Val	Ile
2225						2230					2235			
Ala	Leu	Ala	Phe	Asp	Tyr	Arg	Ala	Gly	Thr	Ser	Pro	Gly	Thr	Pro
2240						2245					2250			
Asn	Arg	Ile	Phe	Phe	Ser	Asp	Ile	His	Phe	Gly	Asn	Ile	Gln	Gln
2255						2260					2265			
Ile	Asn	Asp	Asp	Gly	Ser	Gly	Arg	Thr	Thr	Ile	Val	Glu	Asn	Val
2270						2275					2280			
Gly	Ser	Val	Glu	Gly	Leu	Ala	Tyr	His	Arg	Gly	Trp	Asp	Thr	Leu
2285						2290					2295			
Tyr	Trp	Thr	Ser	Tyr	Thr	Thr	Ser	Thr	Ile	Thr	Arg	His	Thr	Val
2300						2305					2310			
Asp	Gln	Thr	Arg	Pro	Gly	Ala	Phe	Glu	Arg	Glu	Thr	Val	Ile	Thr
2315						2320					2325			
Met	Ser	Gly	Asp	Asp	His	Pro	Arg	Ala	Phe	Val	Leu	Asp	Glu	Cys
2330						2335					2340			
Gln	Asn	Leu	Met	Phe	Trp	Thr	Asn	Trp	Asn	Glu	Leu	His	Pro	Ser

2345		2350		2355
Ile Met Arg Ala Ala Leu Ser Gly Ala Asn Val Leu Thr Leu Ile				
2360		2365		2370
Glu Lys Asp Ile Arg Thr Pro Asn Gly Leu Ala Ile Asp His Arg				
2375		2380		2385
Ala Glu Lys Leu Tyr Phe Ser Asp Ala Thr Leu Asp Lys Ile Glu				
2390		2395		2400
Arg Cys Glu Tyr Asp Gly Ser His Arg Tyr Val Ile Leu Lys Ser				
2405		2410		2415
Glu Pro Val His Pro Phe Gly Leu Ala Val Tyr Gly Glu His Ile				
2420		2425		2430
Phe Trp Thr Asp Trp Val Arg Arg Ala Val Gln Arg Ala Asn Lys				
2435		2440		2445
Tyr Val Gly Ser Asp Met Lys Leu Leu Arg Val Asp Ile Pro Gln				
2450		2455		2460
Gln Pro Met Gly Ile Ile Ala Val Ala Asn Asp Thr Asn Ser Cys				
2465		2470		2475
Glu Leu Ser Pro Cys Arg Ile Asn Asn Gly Gly Cys Gln Asp Leu				
2480		2485		2490
Cys Leu Leu Thr His Gln Gly His Val Asn Cys Ser Cys Arg Gly				
2495		2500		2505
Gly Arg Ile Leu Gln Glu Asp Phe Thr Cys Arg Ala Val Asn Ser				
2510		2515		2520
Ser Cys Arg Ala Gln Asp Glu Phe Glu Cys Ala Asn Gly Glu Cys				
2525		2530		2535
Ile Ser Phe Ser Leu Thr Cys Asp Gly Val Ser His Cys Lys Asp				
2540		2545		2550
Lys Ser Asp Glu Lys Pro Ser Tyr Cys Asn Ser Arg Arg Cys Lys				
2555		2560		2565
Lys Thr Phe Arg Gln Cys Asn Asn Gly Arg Cys Val Ser Asn Met				
2570		2575		2580

Leu	Trp	Cys	Asn	Gly	Val	Asp	Tyr	Cys	Gly	Asp	Gly	Ser	Asp	Glu
2585						2590					2595			
Ile	Pro	Cys	Asn	Lys	Thr	Ala	Cys	Gly	Val	Gly	Glu	Phe	Arg	Cys
2600						2605					2610			
Arg	Asp	Gly	Ser	Cys	Ile	Gly	Asn	Ser	Ser	Arg	Cys	Asn	Gln	Phe
2615						2620					2625			
Val	Asp	Cys	Glu	Asp	Ala	Ser	Asp	Glu	Met	Asn	Cys	Ser	Ala	Thr
2630						2635					2640			
Asp	Cys	Ser	Ser	Tyr	Phe	Arg	Leu	Gly	Val	Lys	Gly	Val	Leu	Phe
2645						2650					2655			
Gln	Pro	Cys	Glu	Arg	Thr	Ser	Leu	Cys	Tyr	Ala	Pro	Ser	Trp	Val
2660						2665					2670			
Cys	Asp	Gly	Ala	Asn	Asp	Cys	Gly	Asp	Tyr	Ser	Asp	Glu	Arg	Asp
2675						2680					2685			
Cys	Pro	Gly	Val	Lys	Arg	Pro	Arg	Cys	Pro	Leu	Asn	Tyr	Phe	Ala
2690						2695					2700			
Cys	Pro	Ser	Gly	Arg	Cys	Ile	Pro	Met	Ser	Trp	Thr	Cys	Asp	Lys
2705						2710					2715			
Glu	Asp	Asp	Cys	Glu	Asn	Gly	Glu	Asp	Glu	Thr	His	Cys	Asn	Lys
2720						2725					2730			
Phe	Cys	Ser	Glu	Ala	Gln	Phe	Glu	Cys	Gln	Asn	His	Arg	Cys	Ile
2735						2740					2745			
Ser	Lys	Gln	Trp	Leu	Cys	Asp	Gly	Ser	Asp	Asp	Cys	Gly	Asp	Gly
2750						2755					2760			
Ser	Asp	Glu	Ala	Ala	His	Cys	Glu	Gly	Lys	Thr	Cys	Gly	Pro	Ser
2765						2770					2775			
Ser	Phe	Ser	Cys	Pro	Gly	Thr	His	Val	Cys	Val	Pro	Glu	Arg	Trp
2780						2785					2790			
Leu	Cys	Asp	Gly	Asp	Lys	Asp	Cys	Thr	Asp	Gly	Ala	Asp	Glu	Ser
2795						2800					2805			

Val	Thr	Ala	Gly	Cys	Leu	Tyr	Asn	Ser	Thr	Cys	Asp	Asp	Arg	Glu
2810						2815					2820			
Phe	Met	Cys	Gln	Asn	Arg	Leu	Cys	Ile	Pro	Lys	His	Phe	Val	Cys
2825						2830					2835			
Asp	His	Asp	Arg	Asp	Cys	Ala	Asp	Gly	Ser	Asp	Glu	Ser	Pro	Glu
2840						2845					2850			
Cys	Glu	Tyr	Pro	Thr	Cys	Gly	Pro	Asn	Glu	Phe	Arg	Cys	Ala	Asn
2855						2860					2865			
Gly	Arg	Cys	Leu	Ser	Ser	Arg	Gln	Trp	Glu	Cys	Asp	Gly	Glu	Asn
2870						2875					2880			
Asp	Cys	His	Asp	His	Ser	Asp	Glu	Ala	Pro	Lys	Asn	Pro	His	Cys
2885						2890					2895			
Thr	Ser	Pro	Glu	His	Lys	Cys	Asn	Ala	Ser	Ser	Gln	Phe	Leu	Cys
2900						2905					2910			
Ser	Ser	Gly	Arg	Cys	Val	Ala	Glu	Ala	Leu	Leu	Cys	Asn	Gly	Gln
2915						2920					2925			
Asp	Asp	Cys	Gly	Asp	Gly	Ser	Asp	Glu	Arg	Gly	Cys	His	Val	Asn
2930						2935					2940			
Glu	Cys	Leu	Ser	Arg	Lys	Leu	Ser	Gly	Cys	Ser	Gln	Asp	Cys	Glu
2945						2950					2955			
Asp	Leu	Lys	Ile	Gly	Phe	Lys	Cys	Arg	Cys	Arg	Pro	Gly	Phe	Arg
2960						2965					2970			
Leu	Lys	Asp	Asp	Gly	Arg	Thr	Cys	Ala	Asp	Leu	Asp	Glu	Cys	Ser
2975						2980					2985			
Thr	Thr	Phe	Pro	Cys	Ser	Gln	Leu	Cys	Ile	Asn	Thr	His	Gly	Ser
2990						2995					3000			
Tyr	Lys	Cys	Leu	Cys	Val	Glu	Gly	Tyr	Ala	Pro	Arg	Gly	Gly	Asp
3005						3010					3015			
Pro	His	Ser	Cys	Lys	Ala	Val	Thr	Asp	Glu	Glu	Pro	Phe	Leu	Ile
3020						3025					3030			

Phe	Ala	Asn	Arg	Tyr	Tyr	Leu	Arg	Lys	Leu	Asn	Leu	Asp	Gly	Ser
3035						3040					3045			
Asn	Tyr	Thr	Leu	Leu	Lys	Gln	Gly	Leu	Asn	Asn	Ala	Val	Ala	Leu
3050						3055					3060			
Ala	Phe	Asp	Tyr	Arg	Glu	Gln	Met	Ile	Tyr	Trp	Thr	Gly	Val	Thr
3065						3070					3075			
Thr	Gln	Gly	Ser	Met	Ile	Arg	Arg	Met	His	Leu	Asn	Gly	Ser	Asn
3080						3085					3090			
Val	Gln	Val	Leu	His	Arg	Thr	Gly	Leu	Ser	Asn	Pro	Asp	Gly	Leu
3095						3100					3105			
Ala	Val	Asp	Trp	Val	Gly	Gly	Asn	Leu	Tyr	Trp	Cys	Asp	Lys	Gly
3110						3115					3120			
Arg	Asp	Thr	Ile	Glu	Val	Ser	Lys	Leu	Asn	Gly	Ala	Tyr	Arg	Thr
3125						3130					3135			
Val	Leu	Val	Ser	Ser	Gly	Leu	Arg	Glu	Pro	Arg	Ala	Leu	Val	Val
3140						3145					3150			
Asp	Val	Gln	Asn	Gly	Tyr	Leu	Tyr	Trp	Thr	Asp	Trp	Gly	Asp	His
3155						3160					3165			
Ser	Leu	Ile	Gly	Arg	Ile	Gly	Met	Asp	Gly	Ser	Gly	Arg	Ser	Ile
3170						3175					3180			
Ile	Val	Asp	Thr	Lys	Ile	Thr	Trp	Pro	Asn	Gly	Leu	Thr	Val	Asp
3185						3190					3195			
Tyr	Val	Thr	Glu	Arg	Ile	Tyr	Trp	Ala	Asp	Ala	Arg	Glu	Asp	Tyr
3200						3205					3210			
Ile	Glu	Phe	Ala	Ser	Leu	Asp	Gly	Ser	Asn	Arg	His	Val	Val	Leu
3215						3220					3225			
Ser	Gln	Asp	Ile	Pro	His	Ile	Phe	Ala	Leu	Thr	Leu	Phe	Glu	Asp
3230						3235					3240			
Tyr	Val	Tyr	Trp	Thr	Asp	Trp	Glu	Thr	Lys	Ser	Ile	Asn	Arg	Ala
3245						3250					3255			
His	Lys	Thr	Thr	Gly	Ala	Asn	Lys	Thr	Leu	Leu	Ile	Ser	Thr	Leu

3260		3265		3270
His Arg Pro Met Asp Leu	His Val Phe His Ala Leu	Arg Gln Pro		
3275	3280	3285		
Asp Val Pro Asn His Pro	Cys Lys Val Asn Asn Gly	Gly Cys Ser		
3290	3295	3300		
Asn Leu Cys Leu Leu Ser	Pro Gly Gly Gly His Lys	Cys Ala Cys		
3305	3310	3315		
Pro Thr Asn Phe Tyr Leu	Gly Gly Asp Gly Arg Thr	Cys Val Ser		
3320	3325	3330		
Asn Cys Thr Ala Ser Gln	Phe Val Cys Lys Asn Asp	Lys Cys Ile		
3335	3340	3345		
Pro Phe Trp Trp Lys Cys	Asp Thr Glu Asp Asp Cys	Gly Asp His		
3350	3355	3360		
Ser Asp Glu Pro Pro Asp	Cys Pro Glu Phe Lys Cys	Arg Pro Gly		
3365	3370	3375		
Gln Phe Gln Cys Ser Thr	Gly Ile Cys Thr Asn Pro	Ala Phe Ile		
3380	3385	3390		
Cys Asp Gly Asp Asn Asp	Cys Gln Asp Asn Ser Asp	Glu Ala Asn		
3395	3400	3405		
Cys Asp Ile His Val Cys	Leu Pro Ser Gln Phe Lys	Cys Thr Asn		
3410	3415	3420		
Thr Asn Arg Cys Ile Pro	Gly Ile Phe Arg Cys Asn	Gly Gln Asp		
3425	3430	3435		
Asn Cys Gly Asp Gly Glu	Asp Glu Arg Asp Cys Pro	Glu Val Thr		
3440	3445	3450		
Cys Ala Pro Asn Gln Phe	Gln Cys Ser Ile Thr Lys	Arg Cys Ile		
3455	3460	3465		
Pro Arg Val Trp Val Cys	Asp Arg Asp Asn His Cys	Val Asp Gly		
3470	3475	3480		
Ser Asp Glu Pro Ala Asn	Cys Thr Gln Met Thr Cys	Gly Val Asp		

3485		3490		3495
Glu Phe Arg Cys Lys Asp Ser Gly Arg Cys Ile Pro Ala Arg Trp				
3500		3505		3510
Lys Cys Asp Gly Glu Asp Asp Cys Gly Asp Gly Ser Asp Glu Pro				
3515		3520		3525
Lys Glu Glu Cys Asp Glu Arg Thr Cys Glu Pro Tyr Gln Phe Arg				
3530		3535		3540
Cys Lys Asn Asn Arg Cys Val Pro Gly Arg Trp Gln Cys Asp Tyr				
3545		3550		3555
Asp Asn Asp Cys Gly Asp Asn Ser Asp Glu Glu Ser Cys Thr Pro				
3560		3565		3570
Arg Pro Cys Ser Glu Ser Glu Phe Phe Cys Ala Asn Gly Arg Cys				
3575		3580		3585
Ile Ala Gly Arg Trp Lys Cys Asp Gly Asp His Asp Cys Ala Asp				
3590		3595		3600
Gly Ser Asp Glu Lys Asp Cys Thr Pro Arg Cys Asp Met Asp Gln				
3605		3610		3615
Phe Gln Cys Lys Ser Gly His Cys Ile Pro Leu Arg Trp Pro Cys				
3620		3625		3630
Asp Ala Asp Ala Asp Cys Met Asp Gly Ser Asp Glu Glu Ala Cys				
3635		3640		3645
Gly Thr Gly Val Arg Thr Cys Pro Leu Asp Glu Phe Gln Cys Asn				
3650		3655		3660
Asn Thr Leu Cys Lys Pro Leu Ala Trp Lys Cys Asp Gly Glu Asp				
3665		3670		3675
Asp Cys Gly Asp Asn Ser Asp Glu Asn Pro Glu Glu Cys Ala Arg				
3680		3685		3690
Phe Ile Cys Pro Pro Asn Arg Pro Phe Arg Cys Lys Asn Asp Arg				
3695		3700		3705
Val Cys Leu Trp Ile Gly Arg Gln Cys Asp Gly Val Asp Asn Cys				
3710		3715		3720

Gly	Asp	Gly	Thr	Asp	Glu	Glu	Asp	Cys	Glu	Pro	Pro	Thr	Ala	Gln
	3725					3730					3735			
Asn	Pro	His	Cys	Lys	Asp	Lys	Lys	Glu	Phe	Leu	Cys	Arg	Asn	Gln
	3740					3745					3750			
Arg	Cys	Leu	Ser	Ser	Ser	Leu	Arg	Cys	Asn	Met	Phe	Asp	Asp	Cys
	3755					3760					3765			
Gly	Asp	Gly	Ser	Asp	Glu	Glu	Asp	Cys	Ser	Ile	Asp	Pro	Lys	Leu
	3770					3775					3780			
Thr	Ser	Cys	Ala	Thr	Asn	Ala	Ser	Met	Cys	Gly	Asp	Glu	Ala	Arg
	3785					3790					3795			
Cys	Val	Arg	Thr	Glu	Lys	Ala	Ala	Tyr	Cys	Ala	Cys	Arg	Ser	Gly
	3800					3805					3810			
Phe	His	Thr	Val	Pro	Gly	Gln	Pro	Gly	Cys	Gln	Asp	Ile	Asn	Glu
	3815					3820					3825			
Cys	Leu	Arg	Phe	Gly	Thr	Cys	Ser	Gln	Leu	Trp	Asn	Lys	Pro	Lys
	3830					3835					3840			
Gly	Gly	His	Leu	Cys	Ser	Cys	Ala	Arg	Asn	Phe	Met	Lys	Thr	His
	3845					3850					3855			
Asn	Thr	Cys	Lys	Ala	Glu	Gly	Ser	Glu	Tyr	Gln	Val	Leu	Tyr	Ile
	3860					3865					3870			
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	3875					3880					3885			
Ser	Ala	Tyr	Glu	Gln	Thr	Phe	Gln	Gly	Asp	Glu	Ser	Val	Arg	Ile
	3890					3895					3900			
Asp	Ala	Met	Asp	Val	His	Val	Lys	Ala	Gly	Arg	Val	Tyr	Trp	Thr
	3905					3910					3915			
Asn	Trp	His	Thr	Gly	Thr	Ile	Ser	Tyr	Arg	Ser	Leu	Pro	Pro	Ala
	3920					3925					3930			
Ala	Pro	Pro	Thr	Thr	Ser	Asn	Arg	His	Arg	Arg	Gln	Ile	Asp	Arg
	3935					3940					3945			

Gly	Val	Thr	His	Leu	Asn	Ile	Ser	Gly	Leu	Lys	Met	Pro	Arg	Gly
3950						3955					3960			
Ile	Ala	Ile	Asp	Trp	Val	Ala	Gly	Asn	Val	Tyr	Trp	Thr	Asp	Ser
3965						3970					3975			
Gly	Arg	Asp	Val	Ile	Glu	Val	Ala	Gln	Met	Lys	Gly	Glu	Asn	Arg
3980						3985					3990			
Lys	Thr	Leu	Ile	Ser	Gly	Met	Ile	Asp	Glu	Pro	His	Ala	Ile	Val
3995						4000					4005			
Val	Asp	Pro	Leu	Arg	Gly	Thr	Met	Tyr	Trp	Ser	Asp	Trp	Gly	Asn
4010						4015					4020			
His	Pro	Lys	Ile	Glu	Thr	Ala	Ala	Met	Asp	Gly	Thr	Leu	Arg	Glu
4025						4030					4035			
Thr	Leu	Val	Gln	Asp	Asn	Ile	Gln	Trp	Pro	Thr	Gly	Leu	Ala	Val
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Asp	Tyr	His	Asn	Glu	Arg	Leu	Tyr	Trp	Ala	Asp	Ala	Lys	Leu	Ser
4055						4060					4065			
Val	Ile	Gly	Ser	Ile	Arg	Leu	Asn	Gly	Thr	Asp	Pro	Ile	Val	Ala
4070						4075					4080			
Ala	Asp	Ser	Lys	Arg	Gly	Leu	Ser	His	Pro	Phe	Ser	Ile	Asp	Val
4085						4090					4095			
Phe	Glu	Asp	Tyr	Ile	Tyr	Gly	Val	Thr	Tyr	Ile	Asn	Asn	Arg	Val
4100						4105					4110			
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Gly	Gly	Leu	Ser	His	Ala	Ser	Asp	Val	Val	Leu	Tyr	His	Gln	His
4130						4135					4140			
Lys	Gln	Pro	Glu	Val	Thr	Asn	Pro	Cys	Asp	Arg	Lys	Lys	Cys	Glu
4145						4150					4155			
Trp	Leu	Cys	Leu	Leu	Ser	Pro	Ser	Gly	Pro	Val	Cys	Thr	Cys	Pro
4160						4165					4170			

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Pro Thr 4190	Pro Pro Pro Asp	Ala Pro Arg Pro Gly Thr 4195 4200	Cys Thr Leu
Gln Cys 4205	Phe Asn Gly Gly Ser	Cys Phe Leu Asn Ala 4210 4215	Arg Arg Gln
Pro Lys 4220	Cys Arg Cys Gln	Pro Arg Tyr Thr Gly Asp 4225 4230	Lys Cys Glu
Leu Asp 4235	Gln Cys Trp Glu Tyr	Cys His Asn Gly Gly 4240 4245	Thr Cys Ala
Ala Ser 4250	Pro Ser Gly Met	Pro Thr Cys Arg Cys Pro 4255 4260	Thr Gly Phe
Thr Gly 4265	Pro Lys Cys Thr	Ala Gln Val Cys Ala Gly 4270 4275	Tyr Cys Ser
Asn Asn 4280	Ser Thr Cys Thr	Val Asn Gln Gly Asn Gln 4285 4290	Pro Gln Cys
Arg Cys 4295	Leu Pro Gly Phe	Leu Gly Asp Arg Cys Gln 4300 4305	Tyr Arg Gln
Cys Ser 4310	Gly Phe Cys Glu	Asn Phe Gly Thr Cys Gln 4315 4320	Met Ala Ala
Asp Gly 4325	Ser Arg Gln Cys	Arg Cys Thr Val Tyr Phe 4330 4335	Glu Gly Pro
Arg Cys 4340	Glu Val Asn Lys	Cys Ser Arg Cys Leu Gln 4345 4350	Gly Ala Cys
Val Val 4355	Asn Lys Gln Thr	Gly Asp Val Thr Cys Asn 4360 4365	Cys Thr Asp
Gly Arg 4370	Val Ala Pro Ser	Cys Leu Thr Cys Ile Asp 4375 4380	His Cys Ser
Asn Gly 4385	Gly Ser Cys Thr	Met Asn Ser Lys Met Met 4390 4395	Pro Glu Cys
Gln Cys	Pro Pro His Met Thr	Gly Pro Arg Cys Gln	Glu Gln Val

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Val Ser Gln Gln Gln Pro Gly His Met Ala Ser Ile Leu Ile Pro				
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Leu Leu Leu Leu Leu Leu Leu Leu Val Ala Gly Val Val Phe				
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Trp Tyr Lys Arg Arg Val Arg Gly Ala Lys Gly Phe Gln His Gln				
4445		4450		4455
Arg Met Thr Asn Gly Ala Met Asn Val Glu Ile Gly Asn Pro Thr				
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Tyr Lys Met Tyr Glu Gly Gly Glu Pro Asp Asp Val Gly Gly Leu				
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Leu Asp Ala Asp Phe Ala Leu Asp Pro Asp Lys Pro Thr Asn Phe				
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Thr Asn Pro Val Tyr Ala Thr Leu Tyr Met Gly Gly His Gly Ser				
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Val Leu Val Pro Ser Leu Leu His Thr Glu Thr Thr Glu Lys Gly Cys				
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Val Leu Leu Ser Tyr Leu Asn Glu Thr Val Thr Val Ser Ala Ser Leu				
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Glu	Phe	Lys	Lys	Arg	Thr	Thr	Val	Met	Val	Lys	Asn	Glu	Asp	Ser	Leu	115	120	125	
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Gln	Trp	Gln	Ser	Phe	Gln	Leu	Glu	Gly	Gly	Leu	Lys	Gln	Phe	Ser	Phe	180	185	190	
Pro	Leu	Ser	Ser	Glu	Pro	Phe	Gln	Gly	Ser	Tyr	Lys	Val	Val	Val	Gln	195	200	205	
Lys	Lys	Ser	Gly	Gly	Arg	Thr	Glu	His	Pro	Phe	Thr	Val	Glu	Glu	Phe	210	215	220	
Val	Leu	Pro	Lys	Phe	Glu	Val	Gln	Val	Thr	Val	Pro	Lys	Ile	Ile	Thr	225	230	235	240
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Gly	Lys	Pro	Val	Pro	Gly	His	Val	Thr	Val	Ser	Ile	Cys	Arg	Lys	Tyr	260	265	270	
Ser	Asp	Ala	Ser	Asp	Cys	His	Gly	Glu	Asp	Ser	Gln	Ala	Phe	Cys	Glu	275	280	285	
Lys	Phe	Ser	Gly	Gln	Leu	Asn	Ser	His	Gly	Cys	Phe	Tyr	Gln	Gln	Val	290	295	300	

Lys Thr Lys Val Phe Gln Leu Lys Arg Lys Glu Tyr Glu Met Lys Leu
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 Glu His Gly Leu Val Gln Phe Ser Ile Asn Thr Thr Asn Val Met Gly
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 Gly Tyr Gln Trp Val Ser Glu Glu His Glu Glu Ala His His Thr Ala
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 Tyr Leu Val Phe Ser Pro Ser Lys Ser Phe Val His Leu Glu Pro Met
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 Ser His Glu Leu Pro Cys Gly His Thr Gln Thr Val Gln Ala His Tyr
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 Ile Leu Asn Gly Gly Thr Leu Leu Gly Leu Lys Lys Leu Ser Phe Tyr
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 Tyr Leu Ile Met Ala Lys Gly Gly Ile Val Arg Thr Gly Thr His Gly
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 530 535 540
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Ser	Val	Cys	Ala	Leu	Arg	Ala	Val	Asp	Gln	Ser	Val	Leu	Leu	Met	Lys	
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Pro	Val	Ser	Ser	Thr	Asn	Glu	Lys	Asp	Met	Tyr	Ser	Phe	Leu	Glu	Asp	
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Met	Gly	Leu	Lys	Ala	Phe	Thr	Asn	Ser	Lys	Ile	Arg	Lys	Pro	Lys	Met	
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Glu	Val	Gly	Val	Thr	Val	Pro	Asp	Thr	Ile	Thr	Glu	Trp	Lys	Ala	Gly	
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Ala	Phe	Cys	Leu	Ser	Glu	Asp	Ala	Gly	Leu	Gly	Ile	Ser	Ser	Thr	Ala	
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Ser	Val	Ile	Arg	Gly	Glu	Ala	Phe	Thr	Leu	Lys	Ala	Thr	Val	Leu	Asn	805	810	815	
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Glu	Leu	Cys	Gly	Thr	Glu	Val	Pro	Ser	Val	Pro	Glu	His	Gly	Arg	Lys	885	890	895	
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Glu	Thr	Thr	Phe	Asn	Ser	Leu	Leu	Cys	Pro	Ser	Gly	Gly	Glu	Val	Ser	915	920	925	
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Thr	Gln	Gln	Leu	Thr	Pro	Glu	Val	Lys	Ser	Lys	Ala	Ile	Gly	Tyr	Leu	995	1000	1005	
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Ser	Tyr	Ser	Thr	Phe	Gly	Glu	Arg	Tyr	Gly	Arg	Asn	Gln	Gly	Asn		1025	1030	1035	

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1085						1090					1095			
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Lys	Met	Val	Ser	Gly	Phe	Ile	Pro	Leu	Lys	Pro	Thr	Val	Lys	Met
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Leu	Glu	Arg	Ser	Asn	His	Val	Ser	Arg	Thr	Glu	Val	Ser	Ser	Asn
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1445						1450					1455			
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Gln Ile Ser Leu Ser Val Ser Tyr Thr Gly Ser Arg Ser Ala Ser Asn
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Met Ala Ile Val Asp Val Lys Met Val Ser Gly Phe Ile Pro Leu Lys
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Pro Thr Val Lys Met Leu Glu Arg Ser Asn His Val Ser Arg Thr Glu
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Val Ser Ser Asn His Val Leu Ile Tyr Leu Asp Lys Val Ser Asn Gln
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